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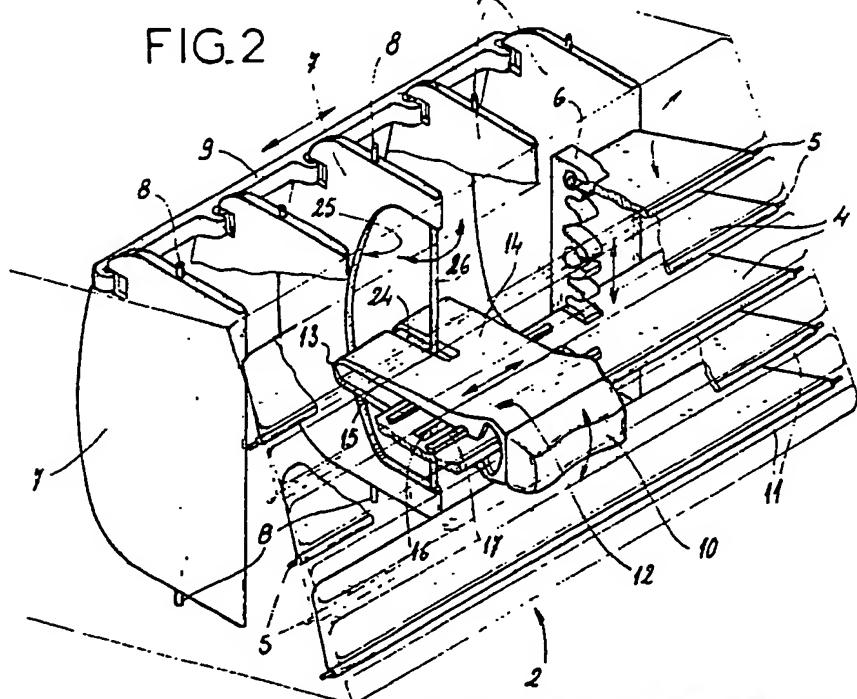
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(54) Ventilators

(57) A ventilator for motor vehicles comprising two perpendicular sets of flaps 4,7, each set being connected by a respective connector bar 6,9. A single component 12 is provided for controlling the direction of the two sets of flaps 4,7. The component 12 slidably locates on the central flap of the first set 4 and is provided at its front end with a control button 10. The rear end of the component 12 is slidably connected to the central flap of the second set 7, thereby enabling the second set of flaps to be rotated as the component 12 is slid along the central flap of the first set 4, and the first set to be rotated as the rear end of the component 12 is slid on the central flap of the second set 7.

FIG.2



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FIG.1

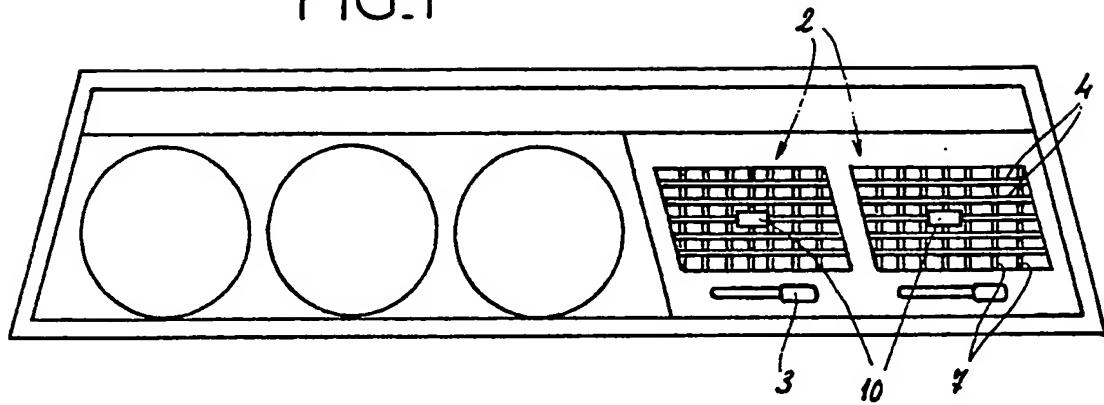
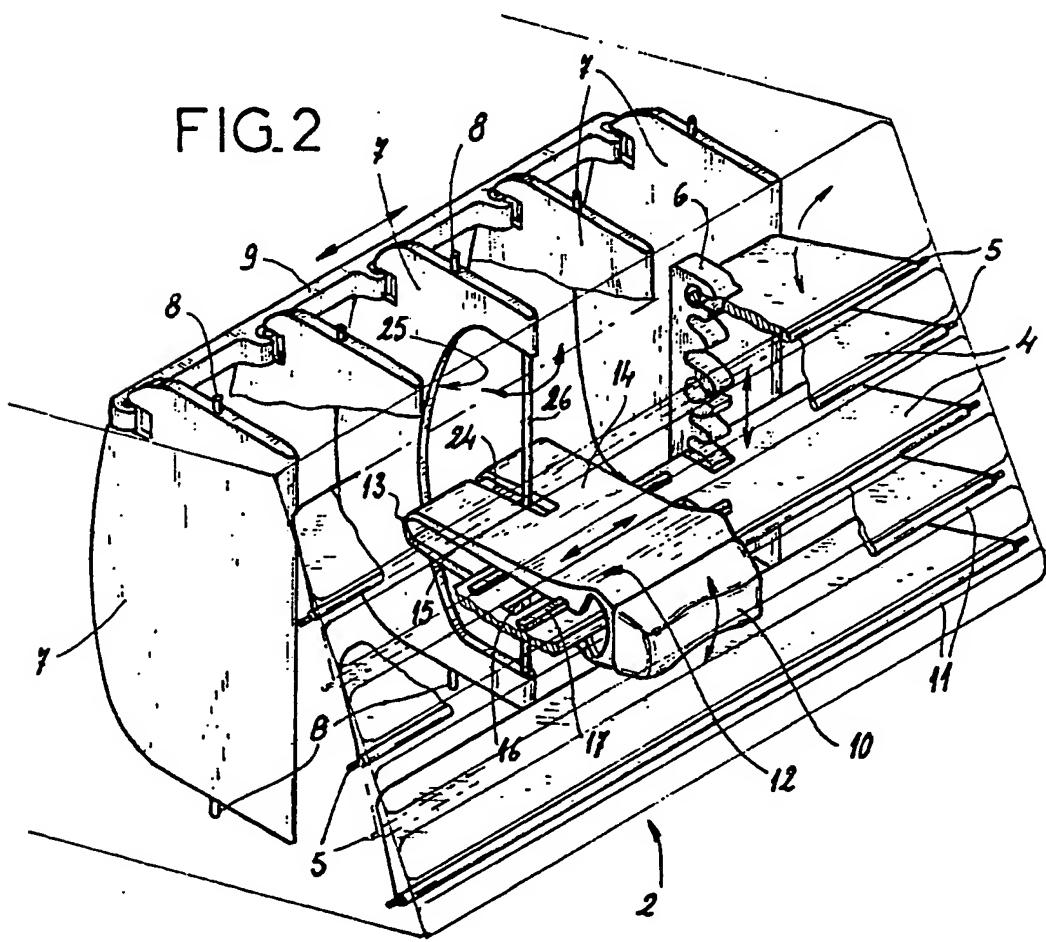


FIG.2



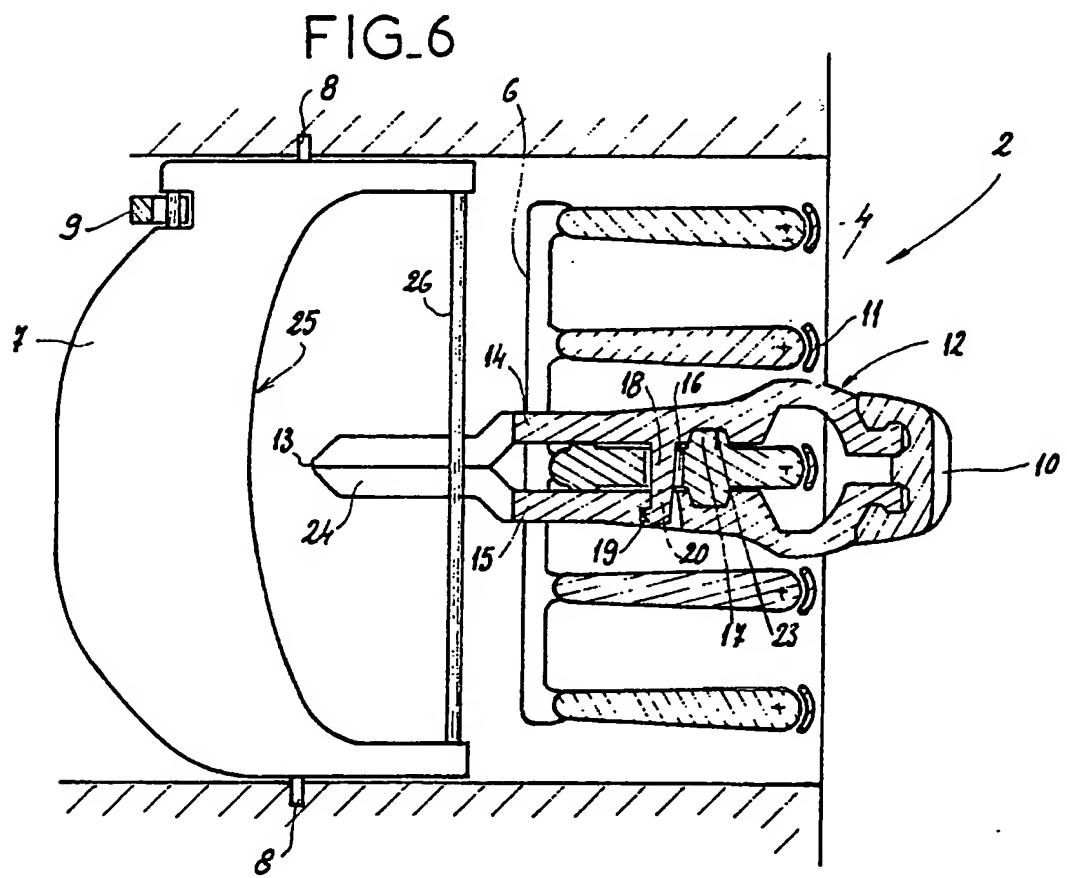
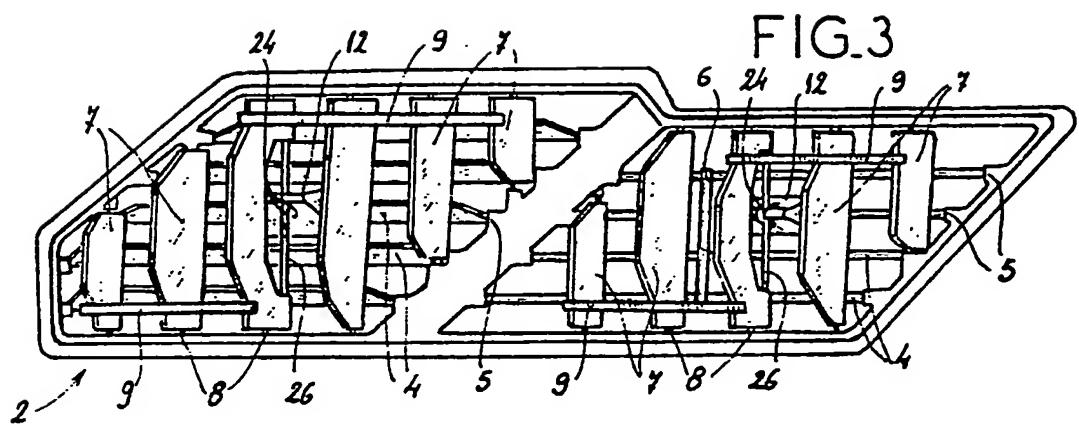


FIG.4

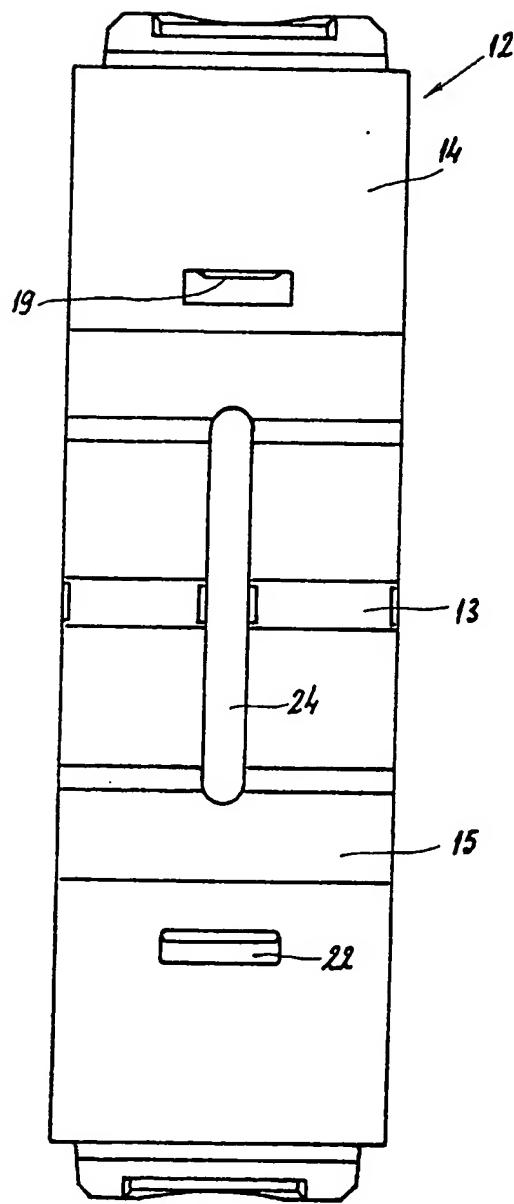
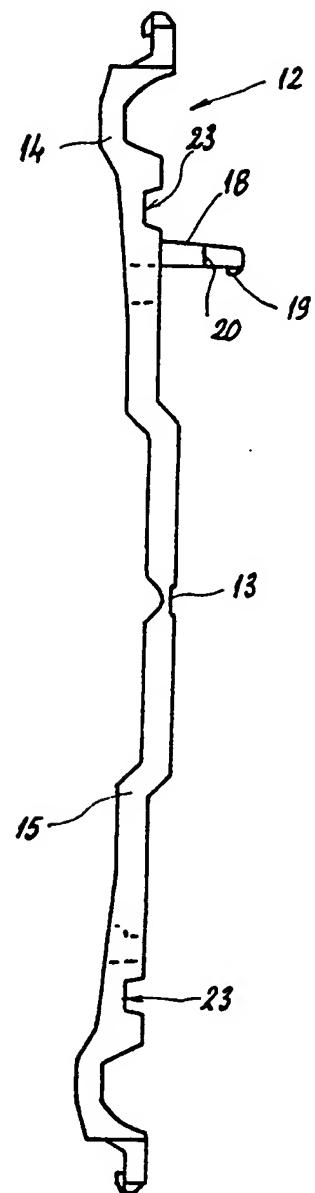


FIG.5



## VENTILATOR

The object of the present invention is a ventilator, specifically a ventilator of the type found on the dashboards of motor vehicles.

In a motor vehicle it is necessary to ensure that the air in the vehicle's passenger compartment is renewed. For this purpose, fixed ventilating nozzles are provided, located especially at the base of the windscreen, together with ventilators which can be adjusted, in order to direct a flow of fresh or warm air towards a specific part of the vehicle. In order to ensure a good standard of comfort for the vehicle's passengers, these latter ventilators can be adjusted on two planes, by tilting on a vertical as well as on a horizontal axis.

Various solutions are in use.

In some cases, the ventilator has a barrel pivoting around a horizontal or vertical axis with flaps connected to each other, set so as to pivot around an axis which is perpendicular to the axis of the barrel.

Another solution involves providing a ventilator having two sets of flaps which are offset in the direction of flow of the air flow, the flaps of a first set being for example hinged around vertical axes, whilst the flaps of another set are hinged around horizontal axes.

As a result, it is necessary to provide two control buttons, each one being for one set of flaps, making it difficult for the user to direct the air flow precisely.

The present invention, concerning a ventilator of the latter-mentioned type, aims to overcome these disadvantages.

To this end, this ventilator, of the type having two sets of flaps offset in relation to each other in the direction of the airflow, the flaps of a first set being hinged around axes which are parallel to each other and connected to each other by a connector bar, and the flaps of a second set being hinged around axes which are parallel to each other and perpendicular to the axes of the flaps of the first set, and also connected to each other by a connector bar, is characterized in that the means of controlling the direction of the two sets of flaps consist of a single component which, covering one of the central flaps of the set of flaps located on the front side of the ventilator, is capable of sliding longitudinally along the latter, the front end of this component forming a control button, whilst its back end is equipped with means of linking with a central flap of the other set of flaps, allowing these flaps to be rotated when it is slid along the first flap mentioned, and to slide on the central flap of the second set when it is activated to rotate the first flap.

It is thus possible, with the help of a single component covering the flap of one of the two sets of flaps and guided longitudinally along the latter, to adjust the airflow by means of a single button.

It is advantageous for the control component to be a flat component with two walls situated on either side of the flap which it covers, whose end which is on the side of the other set of flaps has a central and longitudinal slit in which the front edge of a flap belonging to the second set of flaps is engaged, this flap having a rounded recess such as to cause that part of it which is engaged in the slit of the control component to form a rod.

This arrangement makes for easy connection of the control component with a flap of the second set of flaps, the recess allowing the slit to tilt in relation to the flaps of the second set when the control component slides along the flap on which it is set.

According to a preferred embodiment of this ventilator, the control component is made of synthetic material produced by flat moulding and having midway along its length a thin transversal zone which forms a film-like hinge, this component being equipped with a closing mechanism which ensure that its two arms are locked in on the flap to which it is linked, and the two free ends of its arms being covered by a device forming the control button.

According to a first embodiment, the ends of the control component's two arms are in the shape of raised hooks, and the control button is raised in a complementary manner allowing them to be locked together.

According to another embodiment, the control component is linked to a control button moulded with it and separated from it by a thin zone of material forming a film-like hinge, the button and the end of the component's arm not having the button being equipped with mechanism allowing them to hook together.

According to another characteristic of the invention, the mechanism for holding the control component in a closed position consists of a finger projecting from one of the component's arms, to be engaged in a matching opening in the component's other arm, the finger being intended to be engaged in a longitudinal slot in the flap on which the component is set. The closing finger of the control component thus also functions as a guiding mechanism.

It is advantageous for the finger to present, set back from its free hooking end, a shoulder forming a stop which is intended to come to rest against the control component's other arm. Thus the closing mechanism integrates the mechanism for limiting the closing of the arms, which avoids excessive squeezing of the flap on which the component is set and consequently allows the component to slide smoothly along the flap.

It is preferable for the surfaces facing each other of the component's arms to have grooves which meet matching ribs in the flap. These ribs and grooves help to guide the control component when it moves along the flap.

The invention will in any case be readily understood with the help of the following description, referring by way of non-restrictive example to the attached diagram, of one embodiment of this ventilator:

Figure 1 is a view of a dashboard fitted with two ventilators;

Figure 2 is a front schematic view in perspective of a ventilator as in figure 1;

Figure 3 is a rear view in perspective of two ventilators as in figure 1;

Figure 4 is a horizontal view of the control component of the ventilator;

Figure 5 is a side view of this same component;

Figure 6 is a longitudinal section of this component set in position on a flap.

Figure 1 shows the dashboard of a motor vehicle fitted with two ventilators 2.

Each ventilator has two sets of flaps for directing the flow of air. A first set located at the side of the vehicle's passenger compartment has flaps 4 hinged around horizontal axes 5 and rotating in coordination with each other thanks to a connector bar 6.

Behind flaps 4 are located, as is shown in figure 3, flaps 7 hinged around vertical axes 8 and rotating in conjunction with each other thanks to a connector bar 9.

As is shown in figures 1 and 2, each ventilator is adjusted by means of a single button 10. This button 10 is linked to a control component 12 made of synthetic material and produced by flat moulding having a central transversal thin area forming a film-like hinge allowing the component to be folded back upon itself.

In front of flaps 4, and near to axes 5 of the latter, are located fixed bars 11 forming a decorative grill. In front of this grill is located the control button 10.

Thus this component has two arms 14 and 15 which can be brought parallel to each other to cover the central flap 4 of the first set of flaps. It should be noted that this flap presents a longitudinal opening 16 extending along part of its length, as well as a rib 17 on each of its surfaces, extending parallel to the opening 16.

The arm 14 has, projecting from the surface facing the arm 15, a finger 18 the hook-shaped free end 19 of which is separated from the body of the finger by a shoulder 20 forming a stop.

In the other arm 15 there is located an opening 22 in which the hook 19 can be engaged in order to ensure that the two arms are held parallel to each other, the shoulder 20 coming to rest against the arm 15, preventing any excessive closing of the two arms.

As is shown in figure 6, the finger 18 is engaged in the opening 16 of the flap 4, the component 12 being guided on the flap partially by the fingers 18. This longitudinal guidance is facilitated by the ribs 17 of the flap 4 interacting with grooves 23 set into the surfaces facing each other of the two arms 14 and 15 of the control component 12.

Finally, the free ends of the two arms 14 and 15 have means of hooking which are complementary to those of the button 10, to allow the latter to be locked in, from the side of the bars 11 opposite that of the flaps 4, and after the two arms 14, 15 of the component have covered the bar 11 located in the extension of the flap 4 on which it is set. Thus it is possible to set in place the component 10 from the back of the ventilator and to close it by means of the button 10 from the front side of the ventilator.

As is shown in the diagram, in the end of the control component opposite to that having the button there opens a longitudinal slit in which the edge of one of the flaps 7 is engaged. In this flap 7 there is, set back from the edge in question, a rounded recess 25, such as to cause the zone of the flap 7 which is engaged in the slit 24 to form a rod 26.

Thus it is possible, by means of a very simple single component made of synthetic material and capable of being set in place very easily by perpendicular movement to a flap located in the front of the ventilator, to control both sets of flaps.

All that is needed to direct the first set of flaps is to operate the button in order to tilt the flaps of the first set around their horizontal axes.

To direct the second set of flaps, all that is needed is to slide the control component along the flap which it covers, which, by the action of one or the other of the edges of the slit 24 upon the rod 26, allows the corresponding flap 7 to pivot, since the rod 26 is set back in relation to the axis of rotation of the flap in which it is located.

Needless to say, the invention is not limited to the single embodiment of the ventilator, described above by way of example; on the contrary, it covers all variations.

Thus, it should in particular be noted that the button, set at the front end of the control component, could be from the same mould as it, without departing from the scope of the invention.

CLAIMS

1. Ventilator, of the type having two sets of flaps offset in relation to each other in the direction of the airflow, the flaps of a first set being hinged around axes which are parallel to each other and connected to each other by a connector bar, and the flaps of the second set being hinged around axes which are parallel to each other and perpendicular to the axes of the flaps of the first set, and also being connected to each other by a connector bar, characterized in that the means of controlling the direction of the two sets of flaps consist of a single component which, covering one of the central flaps of the set of flaps located on the front side of the ventilator, is capable of sliding longitudinally along the latter, the front end of this component forming a control button, whilst its back end is equipped with means of linking with a central flap of the other set of flaps, allowing these flaps to be rotated when it is slid along the first flap mentioned, and to slide on the central flap of the second set when it is activated to rotate the first flap.
2. Ventilator according to claim 1, characterized in that the control component is a flat component with two walls located on either side of the flap which it covers, whose end which is on the side of the other set of flaps

has a central and longitudinal slit in which the front edge of a flap belonging to the second set of flaps is engaged, this flap having a rounded recess such as to cause that part of it which is engaged in the slit of the control component to form a rod.

3. Ventilator according to claim 2, characterized in that the control component is a component made of synthetic material produced by flat moulding and having midway along its length a thin transversal zone which forms a film-like hinge, this component being equipped with a closing mechanism which ensures that its two arms are locked in on the flap to which it is linked, and the two free ends of its arms being covered by a device forming the control button.

4. Ventilator according to claim 3, characterized in that the ends of the two arms of the control component are in the shape of raised hooks, and the control button is raised in a complementary manner allowing them to be locked together.

5. Ventilator according to claim 3, characterized in that the control component is linked to a control button moulded with it and separated from it by a thin zone of material forming a film-like hinge, the button and the end

of the component's arm not having the button being equipped with means allowing them to hook together.

6. Ventilator according to any of claims 3 to 6, characterized in that the mechanism for holding the control component in a closed position consists of a finger projecting from one of the component's arms, to be engaged in a matching opening in the component's other arm, the finger being intended to be engaged in a longitudinal slot in the flap on which the component is set.

7. Ventilator according to claim 6, characterized in that the finger presents, when its free hooking end is withdrawn, a shoulder forming a stop which is intended to come to rest against the control component's other arm.

8. Ventilator according to any of claims 3 to 7, characterized in that the arms of the component have, on the surfaces facing each other, grooves which meet matching ribs in the flap.

9. A ventilator substantially as hereinbefore described with reference to the accompanying drawings.

10. Any novel subject matter or combination including

novel subject matter disclosed in the foregoing specification or claims and/or shown in the drawings, whether or not within the scope of or relating to the same invention as any of the preceding claims.

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